

## Literature Review

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### 1. Randomized, open label, controlled clinical trial of oral administration of an egg albumin-based protein supplement to patients on continuous ambulatory peritoneal dialysis

Liliana Gonzalez-Espinoza, Jorge Gutierrez-Chavez, Fabiola Martin del Campo, Hector R. Martinez-Ramirez, Laura Cortes-Sanabria, Enrique Rojas-Campos, Alfonso M. Cueto-Manzano. *Perit Dial Int.* 2006 - Issue 25 - 2

#### Abstract

##### Background/Aim:

Malnutrition is highly prevalent in patients on continuous ambulatory peritoneal dialysis (CAPD) and is a strong predictor of increased morbidity and mortality. Therefore, the aim of this study was to evaluate the effect of oral administration of an egg albumin-based protein supplement on the nutritional status of CAPD patients.

##### Methods:

In this randomized, open label, controlled clinical trial, 28 CAPD patients were allocated to a study ( $n = 13$ ) or a control ( $n = 15$ ) group. Both groups received conventional nutritional counseling; the study group received, additionally, an oral egg albumin-based supplement. During a 6-month follow-up, all patients had monthly clinical and biochemical evaluations and quarterly assessments of adequacy of dialysis and nutrition.

##### Results:

Serum albumin levels were not different between groups; however, a significant increase (baseline vs final) was observed in the study group ( $2.64 \pm 0.35$  vs  $3.05 \pm 0.72$  g/dL) but not in the control group ( $2.66 \pm 0.56$  vs  $2.80 \pm 0.54$  mg/dL). Calorie and protein intake increased more in the study group (calories  $1331 \pm 432$  vs  $1872 \pm 698$  kcal; proteins  $1.0 \pm 0.3$  vs  $1.7 \pm 0.7$  g/kg) than in the control group (calories  $1423 \pm 410$  vs  $1567 \pm 381$  kcal; proteins  $1.0 \pm 0.4$  vs  $1.0 \pm 0.3$  g/kg). Similarly, non-protein nitrogen appearance rate (nPNA) increased significantly more in the study ( $1.00 \pm 0.23$  vs  $1.18 \pm 0.35$  g/kg/day) than in the control group ( $0.91 \pm 0.11$  vs  $0.97 \pm 0.14$  g/kg/day). Triceps skinfold thickness (TSF) and mid-arm muscle area (MAMA) displayed a nonsignificant trend to a greater

increase in the study group (TSF  $16.7 \pm 8.7$  vs  $18.3 \pm 10.7$  mm; MAMA  $23.8 \pm 6.2$  vs  $25.8 \pm 5.9$  cm<sup>2</sup>) than in controls (TSF  $16.4 \pm 5.7$  vs  $16.9 \pm 7.0$  mm; MAMA  $28.7 \pm 7.8$  vs  $30.0 \pm 7.9$  cm<sup>2</sup>). At the end of follow-up, the frequency of patients with moderate or severe malnutrition decreased 6% in the control group and decreased 28% in the study group. At the final evaluation, the most important predictors of serum albumin were the oral egg albumin-based supplement administration and protein intake ( $p < 0.05$ ); secondary predictors ( $p = 0.06$ ) were peritoneal transport rate and MAMA.

##### Conclusions:

In the study group, oral administration of the egg albumin-based supplement significantly improved serum albumin, calorie and protein intake, and nPNA, and, compared to controls, this maneuver was associated with a trend to increased anthropometric parameters and improved Subjective Global Assessment evaluation. Oral administration of the albumin supplement and protein intake were the most significant predictors of serum albumin at the end of follow-up. This oral supplement may be a safe, effective, and cheap method to improve nutritional status in peritoneal dialysis patients.

##### Comments:

Malnutrition is the major problem in patients on CAPD for sometime difficult to correct. This is an interesting study where oral administration of egg albumin based protein improve the nutritional status of the patients receiving it as compared to the conventional nutritional group. It will be interesting to see whether this effect is sustained over a long period of time in a larger group of patients and if so would be an attractive easy therapeutic option to improve the nutritional status of the patients on CAPD.

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